CHAPTER 10 – Untreated Base Course - 02721

General:

Production, construction, and compaction of untreated base course material.

Related Sections:

01572: Dust Control and Watering

Preliminary Preparation:

Study the Standard Specifications, Special Provisions, and project plans. Study the typical road sections, the required depth and width, and the slope ratio. Look for special instructions pertaining to UTBC in the Special Provisions. Read the Manual of Instruction for Construction, Materials, and Safety.

Know the chain of command and authority in your organization and how to escalate issues up to the next level. Never change plans or specifications without consent of the Resident Engineer. Review and know section on required reports and documentation.

Material Description:

Untreated Base Course consists of the construction of a base course composed of natural gravel, crushed rock, or crushed slag placed on a prepared subgrade. The mineral aggregate shall conform to the required specifications.

Source Requirements:

At least 5 days prior to hauling the untreated base course material to the project, the Contractor must submit the following test data on the material:

1. Name of supplier and source
2. Dry Rodded Unit Weight, AASHTO T 19
3. LL/PI, AASHTO T 90/T 89
4. Aggregate Wear, ASSHTO T 96
5. Gradation, AASHTO T 11 / AASHTO T 27
6. CBR, AASHTO T 193
7. Fracture Face, ASSHTO TP 61

Acceptance:

The Special Provision Section 02721S distinguishes three types of UTBC placements and have different testing frequencies. They are as follows:

Type I Placement – Pavement Section.
Gradation – 1 per sublot of approx. 500 yd^3.
Maximum Density (Proctor) – 1 test per 10,000 yd^3
Density & random moisture check - 1 per sublot of approx. 2500 yd^2.
97% avg. required, with no test below 94% compaction.

Type II Placement – placed under curb, curb & gutter, driveways, pedestrian ramps, sidewalk, waterways, flatwork, etc.
Maximum Density (Proctor) – 1 per 10,000 yd^3.
Gradation, random moisture, and Density tests as follows:

Curb, Curb & Gutter - 1 per sublot of 10,000 feet
Sidewalk - 1 per sublot of 3000 yd^2
Driveways, ramps, flatwork - 1 per sublot of 25,000 ft^2

90% avg. density required, with no test below 87% compaction.

Type III Placement – placed on shoulder of road.
Determine moisture content a minimum of twice daily.
Density is determined by visual inspection and documentation.
(A minimum of 2 passes with a roller, or as directed by the Engineer)

The material must meet the gradation requirements according to specifications. A price reduction or rejection of the material may apply if it is out of specification.

Maximum Density (or Proctor) is determined by AASHTO T-180, Method D.
Moisture content must be within 2 percent of optimum moisture as determined by AASHTO T-180.

Materials not meeting the gradation requirements may be allowed to remain in-place at the discretion of the Engineer, provided density requirements are met.

Additional material may not be placed on any unaccepted layer. When directed by the Engineer, the contractor must remove or correct products found defective after placement and replace or remix with acceptable products at no additional cost to the department.

Hauling and Placing:

Untreated Base Course is hauled from the pit and placed on a prepared sub-grade. Do not place on any frozen surface. Refer to Section 01572 for Dust Control and Watering requirements. Place layers in constant thickness and compact each layer to a thickness not exceeding 6 inches deep.

Samples are obtained from the area of placement immediately after the aggregate has been processed and spread, but prior to compaction, of each lift. During the spreading and mixing, water shall be added (if necessary) to bring the material to within 2 percent of optimum moisture content for proper compaction.

Care shall be taken to prevent segregation during processing. In no case shall contamination be allowed. Material shall be confined within the typical section with minimal waste. Do not exceed maximum thickness limits.

Finishing:

Finish grade shall be smooth and uniform to Line and Grade according to plans and specifications with surface deviations less than 3/8 inch in 10 feet, in any direction. (This may be checked with a string line or straightedge.)

The slope ratio should be checked for accuracy and uniformity. It is very important that all loose and segregated areas be repaired. Before application of prime, a tight uniform surface must be achieved, meeting the requirements of the specifications.

UNTREATED BASE COURSE			
SPEC	INSPECTION LEVEL	INSPECTION OBJECTIVE	INSPECTOR ACTIVITY
02721	Submittals	Contractor to submit mix design and required test results.	Check with office on approval from Region lab.
	Proctor Sample	Sample every 10,000 yd^3	Track ticket quantities
	Sieve Analysis sample	3-5 samples per day, depending on production and Placement Type (see above)	Sample after mixing by equipment
	Density Test & moisture content	Type I - Ensure 97% avg., with no test below 94% & ±2% of optimum moisture. Perform 1 test per sublot of 2500 yd^2	Perform density tests & document results
		Type II – ensure 90% avg., with no test below 87%, ±2% optimum moisture.	Perform density tests & document results
	Periodically	Type III – Ensure proper compaction and moisture.	Visual inspection, and document equipment used and rolling pattern.
		Ensure proper line & grade	String line grade and document

UNTREATED BASE COURSE – Check List

Confirming	Attributes
YES ( ) NO ( ) N/A ( )	Reviewed assigned functions and then reviewed the contract plans, specifications, and special provisions, noting all provisions applicable to the assigned responsibilities.
YES ( ) NO ( ) N/A ( )	Reviewed Contractors approved Traffic Control Plan & MUTCD
YES ( ) NO ( ) N/A ( )	Contractor person for Traffic Control Maintainer has been Certified by the Department or by the American Traffic Safety Services. And Certification is current.
YES ( ) NO ( ) N/A ( )	Flaggers have a current Flagging Certification and comply with to the Department's Flagger Training Handbook
YES ( ) NO ( ) N/A ( )	Contractor TCM has submitted a C-110 or other inspection form approved by the Resident Engineer. Which has been inspected at least four times each day, at least one of which must be conducted during nighttime hours
YES ( ) NO ( ) N/A ( )	Inspector reviews safety requirements for the assigned work, reviews MUTCD, and any other safety manuals that may be pertinent and discusses any anticipated problems with the Level IV Inspector or Engineer.
YES ( ) NO ( ) N/A ( )	Completed a Daily Diary on all events for the day.
YES ( ) NO ( ) N/A ( )	Have reviewed all documentation / Certifications and handed all information into the Resident Engineers office.

NOTES:

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

NOTES:

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____